

## 4.0 Environmental Consequences

This chapter describes the short- and long-term impacts that would result from implementing the alternatives discussed in Chapter 2.0. It addresses the impacts of the on-site disposal alternative and three off-site disposal alternatives for contaminated materials at the Moab site, remediation of vicinity properties, and ground water compliance at the Moab site. The alternatives and sections in which they are fully discussed are

- On-site disposal at the Moab site (Section 4.1)
- Off-site disposal at the Klondike Flats site (Section 4.2)
- Off-site disposal at the Crescent Junction site (Section 4.3)
- Off-site disposal at the White Mesa Mill site (Section 4.4)
- Borrow area impacts (Section 4.5)
- No Action alternative (Section 4.6)

As characterized in Chapter 2.0, each alternative except the No Action alternative would include both on-site and off-site activities. In the following sections, impacts of the alternatives are broken down by activity under each environmental resource area:

- *Construction and operations at the Moab site*—these activities would include those needed for surface remediation, ground water compliance, and reduction of the influence of ground water on the Colorado River. These activities would also include construction and operation of any transportation facilities needed at the site to either dispose of the contaminated material on the site or remove the materials from the site for off-site disposal.
- *Characterization and remediation of vicinity properties*—these activities would include surveying, sampling soil, removing contaminated materials, and restoring landscaping. Contaminated materials from vicinity properties would first be transported to the Moab site under all remediation alternatives. These activities would be the same under all the alternatives and thus are addressed only once, under the on-site disposal alternative.
- *Construction and operations at one of the three off-site disposal sites*—these activities are addressed only for the off-site alternatives and would include construction and operation of any transportation facilities needed at the off-site disposal sites for the handling and disposal of contaminated materials.
- *Construction and operations relating to transportation*—these activities would include (1) transportation of contaminated materials from vicinity properties to the Moab site (the estimated volume of contaminated materials from vicinity properties is included as part of the total volume of contaminated materials to be disposed of under all alternatives), (2) transportation of materials from borrow sites to the Moab site and to one of the three off-site disposal sites, and (3) transportation of contaminated materials from the Moab site to one of the three off-site disposal sites (where applicable). For the off-site alternatives, this section addresses impacts of truck, rail, and slurry pipeline transportation of contaminated materials from the Moab site to the off-site locations.

- *Monitoring and maintenance*—these activities would include inspections and sampling conducted in accordance with the site’s Long-Term Surveillance and Maintenance Plan, which would be approved by NRC.

As applicable, the impacts from these activities are summarized for each resource. Impacts at the 10 borrow areas analyzed are addressed in Section 4.5. The No Action alternative is discussed in Section 4.6.

Consistent with DOE and Council on Environmental Quality NEPA guidance, the analysis of impacts in this chapter focuses on those areas in which impacts may occur from any action proposed by the alternatives assessed in this EIS. For this reason, the level of detail and analysis varies among the resource areas according to the duration and degree of the expected impact.

## **4.1 On-Site Disposal (Moab Site)**

This section discusses the short-term and long-term impacts associated with the on-site disposal alternative. The impacts are based on the proposed actions described in Section 2.1 and the affected environment described in Section 3.1. This alternative would result in impacts at the Moab site, vicinity properties, and borrow areas, and transportation impacts associated with commuting workers and the transport of vicinity property material and borrow material. The combined impacts that may result from these activities are summarized for each assessment area (e.g., Geology and Soils) at the end of each subsection.

### **4.1.1 Geology and Soils**

#### ***4.1.1.1 Construction and Operations Impacts at the Moab Site***

##### Geology

Proposed surface or ground water remediation at the Moab site would not be affected by seismic factors. The Moab site is located in an area where evidence indicates that significant earthquakes are rare. The Moab Fault lies deep beneath the site, but it does not pose a significant earthquake or surface-rupture threat to the tailings pile and is not a capable fault under NRC siting criteria. The site lies within Uniform Building Code 1, indicating the lowest potential for earthquake damage.

Two geologic processes, subsidence (basin settling) and incision (cutting into bedrock by the Colorado River), would affect the tailings pile very slowly over very long periods of time. These processes are discussed in Section 3.1.1.4. Incision and subsidence rates indicate that the impact to a disposal cell at the Moab site over the 1,000-year regulatory design period would be to lower the elevation of the cell by approximately 1.4 ft in relation to the Colorado River. This would place the 100-year floodplain of the Colorado River about 1.4 ft higher on the east toe of the cell, creating a higher probability for flooding over time. This potential impact would be very long term, and the potential hazard would be reduced by the proposed buried riprap diversion wall (see Figure 2–3). The proposed ground water remediation would not be affected by these long-term geologic processes. Subsidence would result in the tailings coming into permanent contact with the ground water in approximately 7,000 to 10,000 years.